

STATION 1

1. Rocks on land
2. B
3. NaCl
4.
 - a. Less
 - b. More energy in warm water - molecules spread out
 - c. E. Coast - ~~is~~ less dense than Africa
 - d. Africa's is a cold water current from Arctic so more dense. E. Coast warm from Equatorial
5. Towards the equator (low latitudes)
6. Towards the poles
7. More evaporation at the equator increases salinity.

Station 2

8. Input
9. Output
10. Output
11. In put
12. air
13. specific heat
14. a - Lead
b - Liquid water
c - Joules / g °C

15. 940.5 Joules
 $4.18 (\text{Joules/gram}^\circ\text{C}) \times 75\text{g} \times 3^\circ\text{C} = 940.5 \text{ Joules}$

16. 227.3 Joules $1.01 (\text{Joules/g}^\circ\text{C}) \times 75 \times 3^\circ\text{C} = 227.3 \text{ Joules}$

Station 3

17.
 a. Thermocline
 b. mixed layer
 c. Deep layer

18. Decrease Temp Increase Salinity

19. Thermocline

20. B

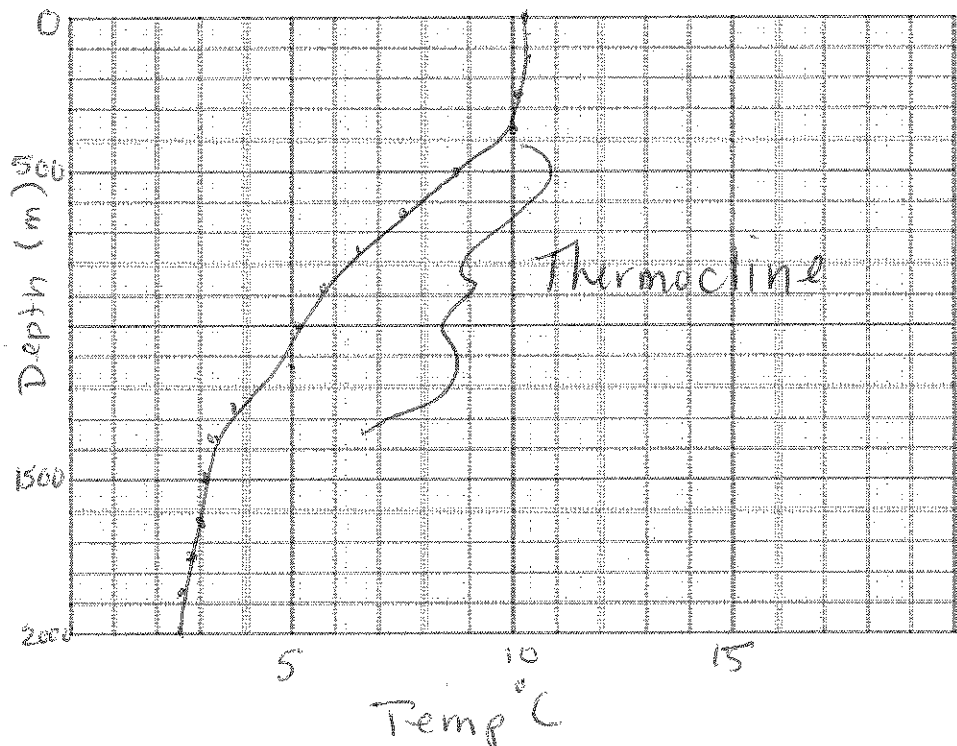
21. C

Station 4

22. Graph the data and identify the thermocline.

Temperature vs Depth

Depth (m)	Temp (°C)
0	10.2
125	10.2
250	10.1
375	10.0
500	8.7
625	7.5
750	6.5
875	5.8
1000	5.1
1125	5.0
1250	3.8
1375	3.2
1500	3.1
1625	3.0
1750	2.8
1875	2.6
2000	2.5



23. A

24. C

25. Deep water

26. C

Station 5

27.

- a. Continental Shelf
- b. Continental Slope
- c. ABYSSAL Plain
- d. Ocean Ridge
- e. Trench

28. Divergent

29. Two plates being pulled apart where magma is rising

Station 6

30. It will be subducted

31. Convergent

32. Pink, Purple, Blue

33. Red

34. 170-180 my

Station 7

35. Fringing Reef

36. Atoll

37. The pH is decreasing which means becoming more acidic

38. Increased acidity will make less carbonate available for shellfish and coral, causing the reefs not to grow and eventually die

Station 8

39. Gets taller/increases

40. D

41. 1. Wavelength

2. Trough

3. Amplitude

4. Crest

42.

a. 0.13 s

$$\frac{1}{7.5 \text{ Hz}} = 0.13 \text{ s}$$

b. 32.3 m/s

$$4.3 \text{ m} \times 7.5 \text{ Hz} = 32.3 \text{ m/s}$$

Station 9

43. Coriolis Effect

44. Cold water

45. Upwelling of cold water from the Arctic

46. Low lat. tide - warmer because equatorial regions receive more solar radiation. High latitudes are cooler because receive less solar radiation

Station 10

47.

a. Longshore

b. Rip current

c. upwelling

48. Rip tide / current

49. There is warm water along the coast instead of cold. This is El Niño

Station 11

50. Full moon - Spring tides

51. 3rd quarter - neap tides

52. Tidal Range

53. Bay of Fundy - Canada

Station 12

54. Bay
55. Sea Arch, Wind + water erosion of a cave
56. Subsidence
57. When a more dense plate sinks below a less dense plate at convergent boundaries. These form trenches.

Station 13

58. CTD (conductivity, temperature, Depth)
59. Secchi Disc - measures turbidity
60. Van Dorn Bottle - takes/collects water samples
61. Hydrometer - Salinity / density

Station 15

62. The upward force equal to the weight of water displaced by an object
63. 1.0 g/ml
64. 1.025 g/ml
65. Takes in water
66. Exerts water

67. SHOW YOUR WORK!

$$F_b = 9.8 \text{ m/s}^2 \times 1.025 \text{ g/ml} \times 4200 \text{ mL} = 42312.5 \text{ N}$$
$$4.23 \times 10^4 \text{ N}$$

68. SHOW YOUR WORK!

$$F_b = 9.8 \text{ m/s}^2 \times 1.000 \text{ g/ml} \times 4200 \text{ mL} = 41160 \text{ N}$$
$$4.12 \times 10^4 \text{ N}$$

Multiple Choice

C 69. The energy that drives surface ocean currents comes from ____.

- a. salinity variations
- b. temperature differences
- ☒ c. wind
- d. wave action

A 70. Ocean currents that move toward the poles are ____.

- ☒ a. warm
- b. warm in the Northern Hemisphere and cold in the Southern Hemisphere
- c. cold
- d. cold in the Northern Hemisphere and warm in the Southern Hemisphere

B 71. What is true about an ocean current that is moving toward the equator?

- a. It is warm.
- ☒ b. It is cold.
- c. It is fast.
- d. It is slow.

C 72. The Gulf Stream affects the climate of ____.

- a. California
- b. Alaska
- ☒ c. Great Britain
- d. Africa

D 73. The influence of cold currents is mostly felt in the ____.

- a. middle latitudes during winter
- b. higher latitudes during winter
- c. higher latitudes during spring
- ☒ d. tropics

C 74. What causes surface ocean currents to be deflected?

- a. deep currents
- b. Earth's revolution
- ☒ c. the Coriolis effect
- d. global winds

C 75. Which process does NOT decrease the salinity of water?

- a. runoff from land
- b. precipitation
- ☒ c. formation of sea ice
- d. melting of sea ice

D 76. Which of the following can cause an increase in the density of ocean water?

- a. a decrease in temperature
- b. a decrease in ocean circulation
- c. an increase in salinity
- ☒ d. both a and c
- e. all the above

A 77. According to the conveyor belt model of ocean circulation, what happens when water reaches the poles?

- ☒ a. The salinity of the water increases.
- b. The density of the water decreases.
- c. The salinity of the water decreases.
- d. The temperature of the water increases.

C 78. Which of the following causes gyres to form?

- a. deep currents
- b. the Equatorial Countercurrent
- ☒ c. the Coriolis effect
- d. West Wind Drift

D 79. The curving of the path of ocean currents and wind belts is called

- a. tidal oscillation.
- b. refraction.
- c. the Gulf Stream.
- ☒ d. the Coriolis effect.

A 80. Deep currents are caused by

- ☒ a. differences in density of ocean water.
- b. the Coriolis effect.
- c. global wind belts.
- d. continental barriers.

A 84. Two climates that are at the same latitude may be different because of ____.

- ☒ a. bodies of water
- b. Earth's magnetic field
- c. distance from the poles
- d. soil type

A 85. How would the climate of a coastal city differ from that of a city at the same latitude located farther inland?

- ☒ a. The coastal city would have cooler summers.
- b. The coastal city would have hotter summers.
- c. The coastal city would have colder winters.
- d. They are at the same latitude so their climates would not differ.

A 86. The temperature of a body of water influences ____.

- ☒ a. the temperature of the air above it
- b. the formation of deserts
- c. global warming
- d. vegetation patterns

____ 87. What is the driving force for surface ocean currents?

- a. density layering
- b. the Coriolis effect
- ☒ c. global winds
- d. salt concentration

B 88. Ocean surface currents are created by

- a. differences in water temperature.
- ☒ b. friction with winds.
- c. differences in water density.
- d. salinity variations.

D 89. The ocean layer of rapid temperature change with depth is known as the ____.

- a. trophic level
- b. mixed zone
- c. deep zone
- ☒ d. thermocline

B 90. In addition to salinity, what factor affects the density of seawater?

- a. depth
- ☒ b. temperature
- b. latitude
- d. salt content

D 92. Most ocean water is located in which zone?

- a. mixed zone
- b. surface zone
- c. transition zone
- ☒ d. deep zone